

# Journal

## Artists Using Science & Technology

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### CYBERPUNK TO THE SINGULARITY



illustration Torrey Nommesen

This issue of the YLEM Journal features interviews with three Science Fiction authors who are currently at the height of their powers. William Gibson, Bruce Sterling, and Vernor Vinge were originally associated with a movement called Cyberpunk in the Eighties, but while that label has fallen into disuse, these authors have continued to contribute novels, short stories, and non-fiction speculation until each has achieved a body of work that is significant and delightful. These authors conjure with the future in ways that brilliantly illuminate our times.

I was able to interview these authors in conjunction with a salubrious institution known as the Author Reading. Whenever authors publish new books, their publishers arrange for book tours across the country to generate interest in the new works. These gatherings are marvelous—you don't have to spend any money, (although you are encouraged to do so, of course), and you can meet your favorite authors and ask them questions in a relaxed atmosphere. I spend a lot of time attending these readings, and recommend them.

As a result of reading an interview with Bruce Sterling previous to my interviewing him, I purchased a portable digital recorder. I was told by the saleswoman that I could transfer the data from the recorder to my computer. I made the leap that the enclosed software would perform voice-to-text transcription. Bruce informed me that I was being overly optimistic. I interviewed him using both the new digital recorder and my old analog tape recorder. I ended up returning the digital machine.

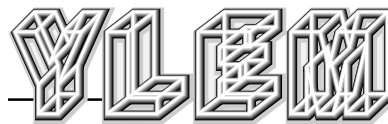
Vernor Vinge is a scientist who recently retired from Department of Mathematical Sciences at San Diego State University. His story "True Names" (1981) was the first to define the concept of cyberspace. His novels *A Fire Upon the Deep* and *A Deepness in the Sky* won Hugo Awards in 1992 and 1999. (John Clute said that *A Fire Upon the Deep* "burns with the brazen energy of the best space operas of the Golden Age.") I met Vinge at a reading of his *Collected Stories* (Tor), and he invited me to interview him at ConJose, the 60th World Science Fiction Convention, where he gave a featured presentation on his concepts of the Technological Singularity. His seminal articles on the Singularity are available on the web at <http://www-rohan.sdsu.edu/faculty/vinge/misc/singularity.html> and <http://www-rohan.sdsu.edu/faculty/vinge/misc/evolution.html>, and in the *YLEM Journal* No. 2 Vol.23.

Bruce Sterling considers himself a journalist as well as a fiction writer. Sterling has written science columns for *The Magazine of Fantasy and Science Fiction*, and maintains an email site on futurological issues at [www.viridiandesign.org](http://www.viridiandesign.org). He made his non-fiction book *The Hacker Crackdown* (1991) available on the web in its entirety at <http://www.chriswaltrip.com/sterling/hackcrck.html>. His introduction to his anthology *Mirrorshades* (1986) is the classic epistle of the Cyberpunk movement, and he has consistently championed the work of other writers and often collaborated with them in the writing of short stories and novels. Some of his novels are *The Artificial Kid* (1980), *Islands in the Net* (1988), *Heavy Weather* (1994), *Holy Fire* (1996), *Distraction* (1998), and *Zeitgeist* (2000). I interviewed Sterling in a restaurant in Ber-

keley, CA, just before his reading of his new non-fiction work, *Tomorrow Now, Envisioning the Next Fifty Years* (Random House).

William Gibson's first novel, *Neuromancer*, remains one of the most influential and epoch-making Science Fiction works of the Twentieth Century. Gibson's influential short stories are collected in *Burning Chrome* (1986). He has completed two trilogies: *Neuromancer* (1984), *Count Zero* (1986), and *Mona Lisa Overdrive* (1988); and *Virtual Light* (1993), *Idoru* (1996), and *All Tomorrow's Parties* (1999). Gibson feels that he is more knowledgeable in the arts than in the sciences, and prefers not to be identified as a Science Fiction author. I interviewed Gibson in a restaurant in San Mateo, CA, after a reading of his latest, non-Science Fiction novel, *Pattern Recognition* (Bantam). The maitre d' of the restaurant told Gibson that the head waiter was a huge fan of his, and Gibson offered to sign a menu for him. At the reading, Gibson said he never watched television, but whatever life he'd gained by not watching, he'd lost fooling around on the web.

Erratum: The credit for the picture of Vernor Vinge in the previous edition of the YLEM Journal should have read: "SFRevu's contents may be reused with the following conditions: 1) credit SFRevu@aol.com and list our URL: <http://members.aol.com/SFRevu> 2) contents may not be changed without the permission of the Editor"



## Forum

Tech and Textiles

Wednesday, May 14, 7:30 PM

Claymation Room in The Zeum

4th and Howard St. at the carousel

San Francisco

Members: Please arrive at 7:00 pm for a very important annual meeting and election!

Transit and parking information below.

The YLEM Forum is free and open to the public.

Technology has opened new possibilities to fiber art and wearable art. We'll see the work and hear about the development of new techniques from three very different artists:

Lia Cook is currently Professor of Art at California College of Arts and Crafts. She works in a variety of media; usually combining weaving and painting, photography and digital technology. Her work explores the sensuality of fabric and the human response of touch. Most recently she has been working on a series of childhood portraits using digital Jacquard technology in which the image breaks down into a sensual field of color and structure. She has exhibited her work nationally and internationally for over 30 years, including a retrospective organized by the French government in 1983 and a traveling survey exhibition organized by the Oakland Museum of California 1996.

Famous Melissa calls herself a "metaphysical gold digger," since she uses gold-plated electronic hardware for her innovative and timeless designs. She has been pioneering electronic fashions since the infancy of the personal computer in 1980. In 2002 she opened her studio into the Artemis Gallery to promote fellow artists' work.

Mary Stieglitz is Professor of Art and Design at Iowa State University. She is fascinated by the visible patterns of our natural world, especially landscape and water images that take on a mythic quality. Original photography forms the basis of her work, which she has done on fabric since the 1970s. Now, she uses digital photography and processes, printing on textiles with wide-format printers. She will bring large samples of her work. Her work is represented in international collections. She is widely published, and lectured recently at the National Gallery of Art in London.

#### Parking information:

Public transit in the area is excellent: The Zeum is three blocks from BART, and Market Street buses and light rail, and the #30 bus from CalTrain goes right by it. Parking: it is after 6 pm, so some on-street unmetered parking may be available. Two recommended parking garages are at 3rd Street between Folsom and Howard, 4th and Mission.

Forum Contact: Trudy Reagan, 650-856-9593,  
trudy.myrrh@stanfordalumni.org



### www.YLEM.org - finding your way by Barbara Lee

We hope you find it easy to navigate the redesigned ylem.org web site. If you need help, check out this article.

#### The Text Version of the Web Site

When entering ylem.org you have a choice between TEXT or FLASH versions. The TEXT section contains all the information within the Flash site. It is easy to read, printer friendly



and fast loading. The navigation and color coding is similar to the Flash web site which is described below.

#### How to Navigate the Flash web site.

To make this site easier for you to use, it has been organized into separate areas. So that each area can be identified and distinguished from the others, each has its own color theme and can be considered a separate Web site. For example, if the main section of this site (that pertains to you) is the "Members" section, you can bookmark any page under the Members section so you don't have to enter the site through the main home page every time you visit our site.



#### 1. Bottom Menu

Each item in the bottom menu bar except for "Search" has a drop down menu that will take you directly to the page. At this time clicking "Search" will take you to google.com, in the future, it will search the ylem.org site.

Pointing to the menu item with your mouse will activate the menu. Moving your mouse up and down the drop down menu will highlight a link to a page. Clicking on the highlighted item will take you to that page. When you're currently in a menu item, the drop down menu will not appear. The menu item will be displayed in that section's color theme. To further navigate a section look at the Top Menu Bar.

#### 2. Top Menu

The top menu bar on each page lets you know what other topics are contained in the menu item you're currently viewing. The 'grayed-out' text in this menu bar, is replaced with larger colored-text above the pink line to indicate the page that you are currently viewing.

#### 3. Scroll Arrows

To view additional text within the main window click the down-arrow found on the right-hand side of the screen.

#### Section Color Coding

If you're not sure, where to go, click on WEB SITE > SITE MAP for a bird's eye view of ylem.org and the color coding that are used throughout the sections in our web site.



#### What's Different on the Redesigned Site?

#### ABOUT US

This section contains information about Ylem and is represented by cool green. About Us sub-categories include: What is Ylem, board, history, sponsors, stories, press releases (PDF), board contact info. This section also includes a movie collage of member's work for your entertainment.



## MEMBERS

This section contains information for our existing members and is represented by hot pink. Members' sub-categories include: join, services, events, gallery, news, opportunities, needs, poll (form), and staff. This section also includes a membership sub-menu for your convenience.



### The @ icon

Click the "@" icon to submit to a category. Example: You have an upcoming event, bit of news, need, opportunity, or question. Simply go to the appropriate "Members" page and select the @ icon. This will launch your e-mail program and open a new email with the address and subject lines completed. Simply type or paste-in your text and click "send." Your e-mail will be posted to that page when the site updates on the 28th of every month.

### Printer

Click the "Printer" icon to open a membership PDF file. This is a printer friendly form for those members who prefer to renew their Ylem membership by mail.

### Renewal Form

Click the "Renewal Form" button to open a window to ACTEVA.COM. Acteva is for those Ylem members who prefer to renew their membership via a secure online web site using their credit card.

### Edit Member Profile

Have you moved? Acquired a URL? or changed your interests? Please print out this PDF and mail to Ylem prior to June when our annual directory is printed.

## FORUM

This section contains information about Ylem's bi-monthly forums and is represented by blue. Forum sub-categories include: Calendar, Map, Forum Feedback (form), Become a Forum Guest Host (form), Staff.

## JOURNAL

This section contains information about Ylem's bi-monthly Journal and is represented by yellow. Journal sub-categories include: Archive, Letter to the Editor (form), Become a Guest Writer (form), Staff. This section also includes an ARCHIVE > YEAR sub-menu for your convenience.



### Acrobat Reader

Click here to download the software required to view PDF files.

### Previous Year

Example: You're viewing the 1999 journal index, clicking this button will take you to 1998.

### Next Year

Example: You're viewing the 1999 journal index, clicking this button will take you to 2000.

### Another Year

Click here to return to the ARCHIVE index.

## WEB SITE

This section contains information about ylem.org and is represented by orange. Web Site sub-categories include: Featured Artist (interactive web works), Become a Featured Artist (form), Site map, FAQ, Report a Problem (e-mail), Staff.

## EXHIBITS

This section contains information about Ylem's exhibit opportunities and is represented by white. Exhibit sub-categories include: Past, Present, Future, Become a Guest Curator (form), Be a Volunteer (e-mail).

## STORE

This section contains information about e-commerce opportunities for Ylem members and is represented by warm green. Store sub-categories include: Featured Artist (If you have product to sell then you should submit here), Become a Featured Artist (form), FAQ, Staff.



## INTERVIEW WITH VERNOR VINGE By Loren Means

LM: Can you say something about the Singularity?

VV: It seems plausible that if computer hardware continues to improve, in the near historical future we could create computer systems that have the processing power of the human brain. If we could also solve the much harder problem of organizing that processing power to behave like a person, then we would have a machine equivalent of the human brain. By itself, this would not be beyond imagining, since we already can make human-equivalent brains, namely by childbirth. But the point is that if we could do it on a machine basis, then a short time later we'd probably have something much better. And then you'd have a situation where humankind is no longer at center stage. The ability to create and to invent and to manage and to run things would be beyond human powers, and in other hands. I call that transition the Technological Singularity. The reason for the term Singularity is that it's a different sort of technical development from any of the technical developments of the past. And the consequences of it are essentially unknowable to us of normal human intelligence. Classical futurology, things like Toffler's waves, only works up to the point where

you have the Singularity. Beyond that, figuring out what happens is like a mouse trying to figure out what human civilization is all about.

LM: You are also credited with inventing the concept of cyberspace in your story "True Names" (1981). How did you formulate that idea and the idea of the Singularity?

VV: I don't entirely discount myself as an original thinker, but ever since I've been a child, I have been reading in certain areas. People are influenced by their context, like fish are influenced by the water they swim in. There have been people talking about ideas related to the Singularity for a fairly long time. Besides the optimism of Science Fiction, I had early on read some of [Michael A.] Arbib, [Director of the USC Brain Project], heard [Charles E.] McColluch [Professor of Biostatistics at UCSF] lecture, and seen the book *Automata Studies* edited by Shannon and McCarthy. In the case of cyberspace, there is also some of John Brunner's fiction. Later, I was well positioned because, although I had no access to the Internet, I did have fairly early telephone access to fixed computers. Before I wrote "True Names", I actually experienced some interactions similar to those in the story, albeit in a very limited way. So there were ideas that occurred to me naturally that might not occur to people who weren't reading certain essays and playing with computers.

LM: I've heard you say that you think this is the best time that's ever been, and it could get even better.

VV: Yes. Many people think of technology as being awesomely dangerous, which it is, but the thing is to realize we live in a universe of risks, those caused by ourselves, those caused by other people, and those caused by the rest of reality; it's pretty clear that without technology we are doomed. With technology, we actually have a very good chance for some extremely nice outcomes. The Singularity could be optimistic to the point that it is scary. Think of the things that humans have always wanted most. What if they really got them? That is scary, because then you have to think about what you are really talking about. Until recently, it was easy to make all sorts of wishes, because except for religiously-inaccessible possibilities, no one had to face up to the potential reality of success. Now, when you look at particular technologies and see the miracles they might deliver, it should give one pause. Take "living forever". I'm not against living forever (like some people who say we just shouldn't want it). The thing is, living forever raises some real questions about what "alive" means and what "forever" means.

LM: You postulate the concept of the superhuman, and you seem to believe that's attainable.

VV: I think that's one of the more likely scenarios for the next thirty years. As to what a superhuman would be, whether it would even be one physical entity in one physical place, I write science fiction about that, but I don't have any particular ideas about which variety of possibility it would be.

LM: But you think it's a good thing.

VV: It's very likely extremely positive, sort of the apocalyptic endpoint to radical optimism. But if a person wants to talk about bad outcomes related to superhumans, that's easy to do, too. Just look at the nice way we treat animals; it's enough to make a person into an animal rights advocate. However, I suspect it's a little late for such a change to count as significant good karma.

LM: But there's a hierarchical aspect to all of this, with superhumans relating to non-superhumans?

VV: Perhaps. One reason I use the word "singularity" is to evoke the notion that what's beyond is especially hard to foresee. So when I talk about post-singularity possibilities, it's errant speculation, worse than most "futurology". But we have analogies we can fall back on. For instance, there's our relationship to animals, which is very scary. We humans, in fact all animals above the single cell, have this nearly unshakable notion of self versus others. A more positive version might be a time-varying hierarchy. Reasoning by analogy with computer networks, it's plausible that superhumans would not have inter-entity barriers as strict as ours. They would still have "me and them", but what's "me", and what's "them" could actually change from moment to moment, depending on current needs. So, for instance, you might have three or four people who are like spouses in a marriage, except that when a complex problem arises and they are in the same room and have high bandwidth, they could become something much more powerful.

In other situations, when superhumans have to go off and solve problems, they could revert to four or five beings of human-level intelligence, working across a much narrower communication channels. There are two other obvious analogies to think about: the bacterial and the corporate. Bacteria are long masters of information-sharing and a kind of evolution that doesn't much resemble the bloody process most of us think of when we use the words "Darwinian evolution". But the bacterial model doesn't really have much of an hierarchical nature. The corporate does have hierarchy. These two forms of organization exist right now. People who use animal competition analogies for speculating about the Singularity can get pretty discouraged. They think we humans would be like cattle, or at best we might be like roaches hiding in the walls of the superhuman civilization. But the other analogies are much less scary. In fact, these other possibilities might include goals that people have always desired.

LM: It seems to me to be controversial when you speak positively about corporations.

VV: I'm certainly not claiming that any particular corporation should be or will be anointed with godhood. But I'm saying that the notion of an entity that doesn't have to kill another entity in order to compete is probably a nice thing. It's not as bloody-minded as what happens in the animal kingdom, where things are settled by death and the rule of "tooth and claw".

LM: You postulate in *A Fire Upon the Deep* (1992) a provocative way of putting together an entity by having more than one

individual grouped together and the group manifests itself as one thinking being, and that's fluid, so that one part can go away and be replaced by another part. A corporation could be conceived in these terms, but you're using it in a much my dynamic way by using sentient individuals that derive sentience by working together.

VV: Right. I agree with you that using the corporate model is a turnoff for people who hear "corporate" and think of their most unfavorable set of corporations. But the thing is to look at it compared to what you see in the animal world. If your company gets bought out by another company, well that is something that happens when there's competition. It's no biggie. It's not something worth being scared about the way we animals are scared of death.

Remember, one thing I'm saying is that I don't know what it would be like after the Singularity. I don't know that it would be a good turn of events. It's easy to write very pessimistic stories. But I think it's plausible that the outcome would be extremely good. It's also plausible that ordinary people would themselves be happy participants. How we would manage if that happened? I think we would no longer have unchanging, isolated minds. This is where the question arises "what models are there for that?" One model is a computer network. Another model is a corporation, or partners in a company.

I think if we are going into a Singularity, one symptom of it might be true technological unemployment. In the past, some tried to comfort us about technological unemployment by saying "new inventions may cause initial unemploy-

ment, but the inventions inevitably create even more jobs to support the new technology." That was probably true through much of the Twentieth Century. But if you are moving into the Singularity, I think you'd have true technological unemployment, where inventions would gradually reduce the size of the workforce. We might have situations where busywork would still exist, but the guys who were doing the work that was really needed would be a smaller and smaller group. In this sort of scenario, as you get closer to the Singularity, you might not notice unemployment. In fact, the social environment might be getting better and better. But effectively, only the best research schools would be doing anything that was really of any worth. This is an elitist thing, one where the size of the elite is steadily declining, until at the Singularity you'd reached the point where even the smartest natural people wouldn't have much to contribute.

LM: Fifty years ago, Buckminster Fuller and Eric Hoffer were suggesting that technology would generate enough wealth to make it unnecessary for people to work. What they didn't formulate was that the corporations who controlled the technology would keep the wealth for themselves instead of distributing it to the ex-workers. It sounds like you're now postulating the kind of leisure utopia Fuller and Hoffer were talking about.

VV: Yes, the benign version

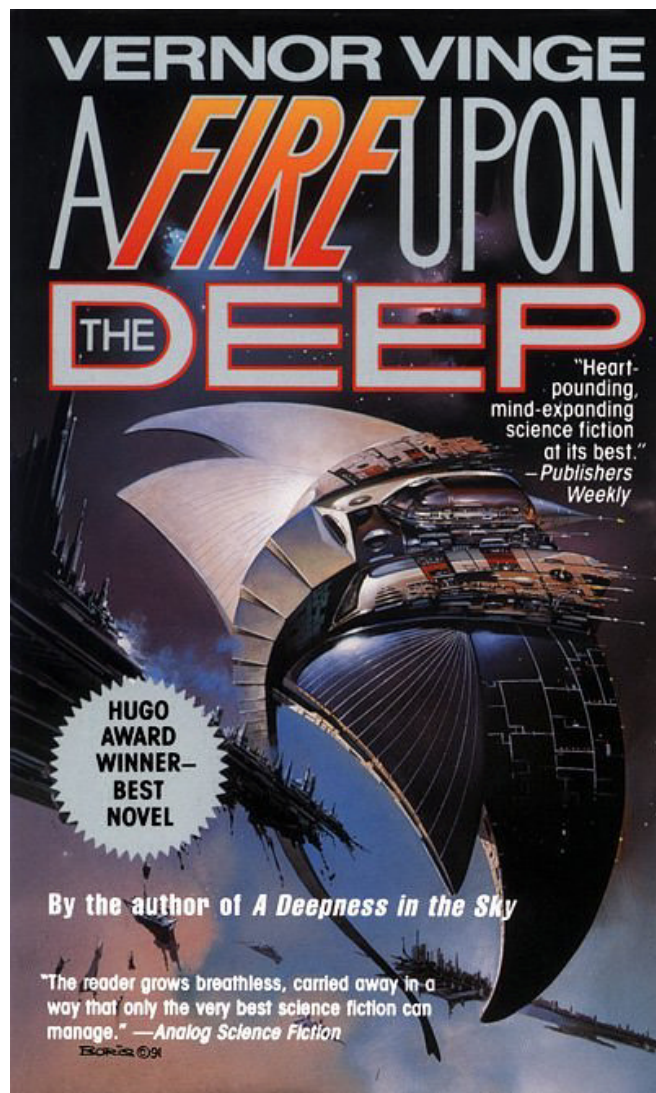
would be like that: Hans Moravec had a scenario where after a while the only type of taxes would be taxes on corporations. If you were not superhuman, you would not have to pay taxes. His version of corporations is not the same thing I'm talking about. The superhumans would be automation embedded in commercial corporations. Their "back offices" would be superhuman machines that would still interact politely with us. People who were content to remain normal humans wouldn't have to pay taxes. And eventually the superhumans would move off the surface of the earth to places that are more congenial to powerful minds and large projects. You could leave and become superhuman if you wanted, but if you did, you'd have to be willing to play hardball. You might be subject to a hostile takeover, and become part of a larger mind. The only normative thing I'm saying is about this sort of scenario is that most of the credible alternatives are much more destructive. Turning our backs on technology or trying to ban tech progress would be enormously dangerous and more obviously destructive than trying to use technology to make things better in the world.

A somewhat different Singularity scenario: We're enter-

ing an era of networked communication. We're in a golden age of human creativity. We can benefit from the enormous number of brilliant people who haven't had an opportunity to interact before. It may be that only smarter and smarter people can make a contribution, but along the way, technology is going to make it possible to find almost all the really smart people. With the Internet and new interface technologies, we should be able to expand our notions of what "smart" means. A lot of people who aren't traditionally smart can now make great contributions, where before they were blocked by physical circumstance and other people's preconceptions about creativity. A book I recommend in this direction is Marc Stiegler's *Earthweb*, in which the Net empowers people all over the world. In fact, that's close to another model of superhumanity, namely what Greg Stock describes in his book *Metaman*. In the *Metaman* scenario, the "superhuman" might not even be

self-aware. It would be all of us together, working with the Net to produce something that would be superhumanly competent.

LM: Are you thinking in terms of interacting with non-human intelligences?



VV: Do you mean, what would it be like to talk to one of the post-Singularity creatures? Speculating: If the superhuman wished, it could make you think you understood. Of course, you almost certainly wouldn't really understand, but the creature could make you think that all was splendidly clear. More generally, the superhuman could probably cause you to perceive the interaction in any way the creature wished.

LM: As an artist, I'm looking forward to works of art that are conscious and can interact with me.

VV: Ah! That brings up still another angle on this. If your art were conscious, then there would be some hard new questions about your moral responsibility to it!

Here are some more limited speculations about art: When people talk about the Singularity and stopping it, I point out that there are people who are working hard to make the Singularity, be-

cause it makes their own goals easier to attain. The military and economic communities are places where this is true. I think art is another such place. Guenter Stent has a book called *The Coming of the Golden Age: a View of the End of Progress*. Here is a flaming assertion, one that you may deeply disagree with: It's an assertion that Stent also makes, and I think it's true, and that is that we have come to the end of progress in the arts. The contemporary arts are self-derivative, just tweaking upon tweaking. This is one reason why much of it begins to look so chaotic. You have millions of brilliant people who have been exposed to all prior art, and now that prior art is working its way through indefinite embellishments. This is a sign of reaching the end of the road.

If we have the Singularity, then for the early post-human artists it could be a vast new beginning, a beginning where there are no clichés! There would be no prior art except for what those little ants and roaches called humans had done. For the first post-humans this might be very like the era when humankind awoke. There must have been storytellers then, the first storytellers. What were their stories like? They were probably pretty limited, but the thing is, anything the artist did was new! That's the flip side of our present situation. So I think being an early post-human artist would be an extremely exciting thing. It would be also be frustrating, since you'd know that anything you did would look crude compared to what your peers could do once they saw your work and studied it.

LM: I think one of the most important events in the art of the Twentieth Century was Mandelbrot's discovery of fractals.

VV: Nice point. In fact, one good thing about science/math/technology is that it is a source of novelty, including for the arts. Even if we don't get the Singularity, this fact should postpone the death of intellect I claimed above when I was talking about the arts refining themselves into triviality. We'd have novelty until science itself begins to suffer, when it hits the ceiling that human intellect can support.

LM: I see artists working with or without computers to form partnerships with forces outside themselves in the creation of art.

VV: I agree with you, and I agree whether or not there is a Singularity. In either case, it's the way that we'll get good developments over the next ten or fifteen years.

<http://www-rohan.sdsu.edu/faculty/vinge/misc/singularity.html>  
<http://www-rohan.sdsu.edu/faculty/vinge/misc/evolution.html>



## INTERVIEW WITH BRUCE STERLING By Loren Means

LM: I just finished reading your story "Junk DNA" that you wrote with Rudy Rucker for the January 2003 issue of *Asimov's Science Fiction*. It seems like you and Rudy were touching on some of the same issues in that story that you're dealing with in your new non-fiction book, *Tomorrow Now, Envisioning the*





*Bruce Sterling*  
[photo courtesy of RandomHouse]

BS: Well, that's the Dogpatch cartoon version of issues that are treated in a more sober way in my book. I always enjoy writing with Rudy. He liberates my whimsical aspects. He has a certain weird joie de vivre. What's the proper term for Rudy—"puckish", perhaps? He's older than I am, yet he liberates me from some of the strictures of my compositional process. He's soulful.

LM: One thing I haven't recovered from is the loss of technical computer support when my son moved away from home. I was trying to figure how to download from my new digital recorder, and he had to tell me there were extra USB ports on the front of the computer.

BS: I'm not a hacker. I can't code, and there are a lot of things that are beyond my technical facility. But I'm very into industrial design, and I'm not intimidated. In fact, I will look for all the USB ports and really try and figure out how they were put there and how the designers composed that. What I'm interested in is the human interface to the object. How does the human body interact with it? The grand trend over the past twenty, twenty-five years, has been for ergonomics to dominate. You can see that this little digital recorder you've got here is a lot more palm-friendly than this larger, clunkier one. This digital thing is like a sex toy almost. It's more intimate. The curves on it are more voluptuous. It's more sensual, it's more tactile. This analog tape recorder is large, square. The machining on it is not as precise as on the digital one. They've got different design philosophies behind them. The digital one conforms itself to the parameters of your own human body more successfully than the older analog one does. That's a very important trend.

LM: When I interview people in my studio, I want to interview them in stereo, and the only tape recorder I've found that

will record in stereo is a karaoke machine. And I keep feeling like I should hook it up to the TV and the interviewee and I should do a song together.

BS: I'd suggest you be even more daring than that. If it bothers you that it's a goofy karaoke machine, you should spray paint the entire thing hot pink. Just say "A technician friend of mine brought this out, it's one of a kind, and I use it for special people like yourself." At this point everybody sits up and like "Whoa. You've got a unique, heavy thing going on there!" I have a friend who does computer security for the Texas state government. One of the worst problems he had was dealing with the class structure of office computers. The guy who runs the Bureau doesn't want to have the same computer as a line worker. He wants to have the serious boss's computer. So I convinced him to solve this problem by making fifty-cent die-cut plastic stickers that said something really important and official, and just affixing it to the side of the computer. It visually indicates that it belongs to a boss. Now it's got some kind of impressive threat or warning on the side. "Under no circumstances are non-cleared personnel to access this particular device under orders of section whatever!"

At this point you're meeting the human need. It's about pyramidal authority within the organization, whereas computers tend to be networked objects, they don't really have big daddy computer mainframe and then the little terminal peons anymore. Everybody's got a Dell whatever. But you still need an official salute or some forelock-tugging. It was driving him nuts, but the solution was very cheap. Fifty bucks and he could go through the entire department putting these stickers on the machines of everybody that counted, and they'd be perfectly happy. Big "technical" problem, no, it's entirely a social problem.

LM: I worked for a computer company doing a corporate newsletter, and got my boss into big trouble revealing company secrets from one department to the other departments.

BS: That's known as "melting stovepipes" in the security business. You want to have your own stovepipe where the intelligence is passed from top to bottom, but you don't want that leaking across organizational boundaries into somebody else's backyard, because otherwise they'll steal your funding. It's all about the budgetary process and building private fiefdoms within the bureaucratic organization. You can accomplish a lot by understanding that gaming aspect and playing to it.

LM: I've been reading your Viridian announcements...

BS: ...or whatever they are...

LM: ...at [www.viridiandesign.org](http://www.viridiandesign.org), and it seems like they're on the same lines as *Tomorrow Now*, except that *Tomorrow Now* doesn't seem to spell it out in quite the same way.

BS: They're different target audiences. The thing I like best about doing an email list is doing things that you can only do through email. I'm always interested in exploiting media for their own sake and trying to see what kind of social effects you



can get by doing this, that or the other. That's why on the Viridian list we have lots of contests. That's the main way by which we manifest any interactivity. There's no discussion or argument on Viridian list. If you want to announce yourself to other people, you generally have to do something creative, and then you'll be shown off. That's something you can't do in novels and books. It also serves as a straw-in-the-wind polling system for me. If I come across some notion that seems possibly significant, I will write a note about it and judge the reaction from the email list. Do

people ask for more, are they excited, do they send me similar material? If that's the case, then it looks like something that maybe will break. If it just sort of falls off the edge of the universe or nobody says anything, ok, maybe the notion is before its time, maybe it's past its time, or maybe it's just me, but in any case I probably shouldn't be investing a lot of energy there. You can't really do that with a book either, because the response time is just too slow.

LM: What do you think of generative art?

BS: It has a number of difficulties from a critical aspect, there's no question about that. I used to talk to William Latham about this. From a gallery perspective or an art scene perspective, it's just very hard to validate it. It doesn't have any of the Walter Benjamin aura that is associated with a creative art effort. Like:

"Gee, what a pretty graphic. How did you draw it?" "Well, I didn't. I just set this thing up that would generate a bunch of them and then I took snapshots." "So you're sort of like Jacques Cousteau. You're not really creating the coral reef, you're just sort of filming it." "Yeah, I guess that's so." "Well, you know, Jacques Cousteau is not an artist." Cousteau was a documentary filmmaker. Nobody's going to give him art prizes. He's not inducted into the French Pantheon because he took beautiful photographs of coral reefs. I'm interested in generative art too, but I think it would probably be more accurate to call it something like "generative graphics."

LM: Some people are doing text with it, too.

BS: That dates back to stuff like "The policeman's beard is half-constructed," stories written by text-generating programs. William Gibson and I were asked about this on a number of occasions, and we sort of agree that if a machine ever wrote a novel, we would look at it first and see if it was any good, we weren't going to pre-judge the issue. I finally realized in thinking about the subject that I'm not really very interested in a Turing-style machine that can do what a human novelist can do. Write a story: boy meets girl, boy loses girl, gunfight at OK Corral, hero and heroine ride off into the sunset. So what?

The literary experience I want from a machine is not for the machine to tell me stories about the human condition. I really

**The literary experience I want from a machine is not for the machine to tell me stories about the human condition. I really want a machine to tell me a story about the machinic condition.**

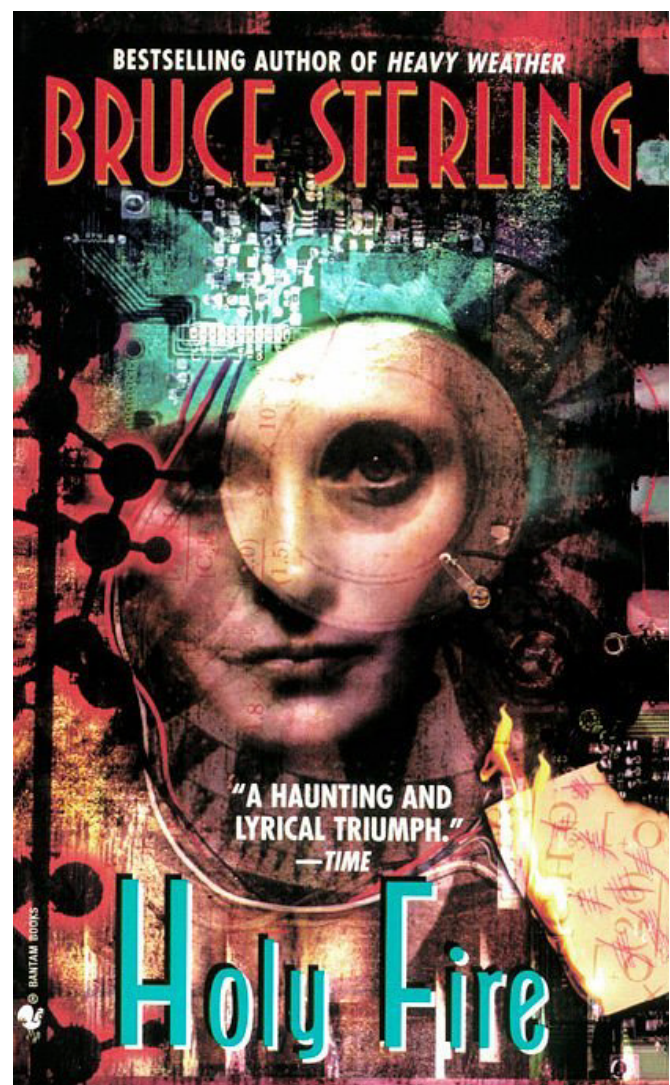
want a machine to tell me a story about the machinic condition. What it's really like to be authentically a machine intelligence. I want it to level with me, and I want to get that same sense of authenticity that I do from a good author. I think we're probably very far from that, because nobody really has any idea what to make of it. There's been a lot of effort at getting

machines to fake human language and learn syntax, or at least handle syntax, but there doesn't seem to be any kind of approach toward verbalizing machine processes. Presumably it would be written in software code of some kind, but who knows? We

don't write books out of neural impulses. But if a machine is an artist, I want it to be doing art that a machine would do.

LM: I'm looking forward to art forms that interact with me differently from anything I've seen before.

BS: Artificial Life people always want machines to do processes that mimic or resemble organic processes that we're used to, like flocking or reproduction, but a true artificial life, presumably, would manifest aspects of life that are not recogniz-



able in carbon-based life. Nobody knows what to look for under those circumstances. It always feels like they're trying to shoehorn this process. They're trying to put the horse's head on the front of the car. They're trying to get the Concorde to lay eggs.

LM: Most of the energy seems to be going into making movies with computer-generated actors mimicking real actors. I'm more interested in art that doesn't mimic the real world.

BS: It's hard to figure out how you would recognize Artificial Life at all, though. How would you pick up from the background noise and recognize its authentic significance as an important phenomenon? It's like, "It looks just like a bird", or "they look just like fish," but what if they're neither birds nor fish? There's no reason for them to be particularly birdlike or fishlike. I've always felt that computation as a process has never come into its own. It's always been handled through far-fetched metaphors that don't really get a grip on it. Terms like "memory storage, running, booting, loading, down, up," they prejudice the issue. They kind of beg the question of what's really going on.

LM: I get the impression that you're not as convinced of the coming Technological Singularity as Vernor Vinge is.

BS: I just don't mistake it for a Judeo-Christian apocalypse. I think something happens, it's just not the be-all and end-all. It's not some sort of catastrophic, amazing, ontological thing. It's a thing. And it's not human, and it's not entirely comprehensible by human standards. But that doesn't mean that it's magical or mystical or semi-divine. It's a quotidian event from its own perspective. It's an interesting question that Vinge set, and in a funny kind of way it's very similar to the Turing test. How do you know that a computer is intelligent? Well, because it can talk to you as well as your girlfriend can, and you can't tell the difference between them, except that one is intelligent, so the other has to be. How do you know what a science fiction writer can imagine? Well, he can only imagine the things that a

human being can imagine, because he's a human being, so therefore if there's something humanly unimaginable, that must encompass everything that's unimaginable. But no, it doesn't actually. There are lots of things that are humanly unimaginable that in fact happened. We get used to it. Like contagious sexual retro-viruses, for instance. It's unthinkable. Or the atomic bomb. That wasn't unimaginable, science fiction writers did a lot of imagining of that.

LM: Is your approach to science fiction primarily dystopian?

BS: I don't think we ever get off the hook. My feeling is there are plenty of places right now that are dystopian. Like having AIDS in Botswana is dystopian. It's like a third of the population has been stricken with a contagious sexual plague. If that's the case, a third of Botswana can be dead in ten years. That's a pretty damn far-fetched awful science fiction scenario. If it happens to you, obviously it's a calamity of the first order. It's unbelievable bad, worse than Dachau in a lot of ways. There's not as much human malignancy, but it's like everybody who is sexually active is killed, and there's nobody left but pre-pubertal children and retired people. It's a dreadful thing to contemplate. If you wrote a science fiction novel about that, it would be considered extremely depressing. But that may be a reality. Not only may it be a reality, but it may happen and nobody may even notice. Africa contributes something like three percent of the planet's Gross National Product. It wouldn't even cause an upkick on the Dow Jones to have Botswana annihilated by a giant plague. What if they threw a dystopia and nobody cared?

LM: You put forth an actual date for climate crash. What was it, 2012?

BS: It's actually the 2060s according to Munich Reinsurance. They've run some stats that suggest that by the 2060s there's so much weather damage that the entire planet's GNP is taken up by repairing stuff. But I don't believe those stats. Even if that were the case, I don't think that everything stops. People will be real, real busy under those circumstances. There might not be any economy, but there would certainly be a command economy. People being drafted and forced to build flood-proof shelters. It's like societies having the living daylight's bombed out of them. They don't make money. Like Japan being leveled by B52s, obviously houses and shipping and structures

**It wouldn't even cause an upkick on the Dow Jones to have Botswana annihilated by a giant plague. What if they threw a dystopia and nobody cared?**

are being destroyed faster than they are being built, but that doesn't mean that everybody dies or that activity comes to a standstill. On the contrary, people are frantically busy and working around the clock. It doesn't end anything, it just gets

really, really taut. Children are still being born. People don't remember what it was like to live in a world where there wasn't constant weather damage. It's a society living in a world of constant weather damage.

It's not the end of history to have localized mass destruction, or a local apocalypse. It's very impressive, but you shouldn't mistake that for the calendar ceasing to work. The clock never stops ticking, and it doesn't matter if your civilization is annihilated. You can be the Hittites. You can forget your language. You can forget your script. Every city you know can be under sand dunes. That doesn't stop the clock. It just stops the Hittites, that's all.

LM: I notice some fantasy writers produce enormous numbers of books in a relatively short time.

BS: If you get the bit between your teeth and you're writing story after story set in the same creative universe, you can churn out a lot of product in pretty short order. I got a surprise in my own prolificacy. I never thought I'd be putting so much ink on paper. It's getting kind of embarrassing, really. I now get alarmed when somebody comes up and says, "I've read all of your books." And I answer, "All of them, really? And you're still alive?"

LM: Are you working on another novel?

BS: Oh, yes. I've got one in my laptop right here at my elbow. I'm pretty well always working on something. Sometimes I'm more-or-less pretending to work on something, but there's always some kind of major thing. I've got a two-book contract right now that will keep me busy for a while.

LM: Are there some up-and-coming writers that you're interested in?

BS: Yeah, there's quite a few actually. Charles Stross, Cory Doctorow, Peter Watts. There's a whole generation of people who are very computer-literate guys, who are doing some very inventive, very radical hard Science Fiction. I would have to say in the past two years there has been a sense of gathering vitality in the genre. I expected it to happen in the Nineties, but I think it was overshadowed by the dot-com boom. There were so many people who could have become science fiction writers who were just really busy programming or building web sites or something. Now that the fever is departing out of that scene, I think we're going to see more creativity in literature.

LM: Do you think there are other English writers besides Stross who are important?

BS: Sure. There's Iain Banks, there's a bunch of new British SF writers. There's China Mieville, who does these very elaborate fantasies and he's obviously hugely talented. I've got to plug one book of my own. YLEM readers should read my book *Holy Fire*. That's my valentine to the electronic arts scene.

## INTERVIEW WITH WILLIAM GIBSON By Loren Means

LM: I've read several novels about Mars lately, and that doesn't seem like something you're going to do. I don't think of you as that kind of Science Fiction writer.

WG: I've always been kind of ambivalent about whether or not I was a Science Fiction writer. Science Fiction was like fifty percent of my natural culture when I was a kid, and the other half was rock 'n' roll. So that's where I came from, but I've never had that "Yes, this is what I am" thing that Bruce Sterling has, for instance. Bruce absolutely knows he's a Science Fiction writer and he's delighted with it. I've always liked that about him, but I've never had that. I just wanted to be a guy who wrote William Gibson novels. I know David Cronenberg wants to be remembered as a guy who made David Cronenberg movies. The ultimate thing would be to become your own genre. So I don't revisit Science Fiction very much, and I don't read Science Fiction. Lately I don't even read fiction very much, but that's because I can't read fiction when I'm writing.

LM: It sounds like Iain Sinclair is the fiction writer you've read most lately.

WG: He's the one who I've found most exciting. It's very hard to explain. Do you know about psycho-geography?

LM: No.

WG: Do you know about the Situationists?

LM: Well, I printed an interview with Baudrillard in the YLEM Journal recently. Although he claims he's not really a Situationist.

WG: Part of the program of the Situationists International involved a ritual drunken drifting, as they called it, through Paris, in an attempt to discover territories there that had never been found before. To come at it from some novel psychic angle. They were very, very serious about it. Some people in London picked it up in the Seventies, in a sort of lighter, more ironic vein, and began publishing as the London Psycho-Geographical Society. What they were doing somehow seemed to suggest something to Sinclair and to some of Sinclair's friends, and they all started working in a vaguely similar vein. It has everything to do with the idea of Spirit of Place, and that there's a kind of magic in very, very old cities that causes it to endlessly, sort of cyclically re-occur. I found Sinclair after he had published a book of poems about London, which I then discovered had inspired Peter Ackroyd to write a brilliant, brilliant short novel called *Hawksmoor*, which I think was quite popular in England. And then I was off and running, and I read everything I could get my hands on, which wasn't much that Sinclair has done. He really doesn't have a readership here, and I kind of doubt that he ever will. You have to know quite a lot about London to start with in order to really appreciate what this guy is doing.



William Gibson  
[Photos courtesy of Putnam Penguin]

LM: You and Bruce Sterling gave speeches in Washington, D. C. back in 1992 trying to get more computers into the schools. How do you think that turned out?

WG: I have no idea. It was kind of a last-minute thing for me. We got to this event which was at the National Academy of Sciences and took the temperature of the audience, and came up with what we thought would outrage them most and might do some good, fifteen minutes before we went on. That was just when Al Gore had first gotten into office, so that was my only sort of official semi-presidential invitation, because he was very heavily backing that conference.

LM: We don't hear the phrase "information superhighway" any more.

WG: That's more dated than "cyberpunk," actually. I haven't heard that phrase for a long, long time.

LM: I heard that the reason *Neuromancer* was never made into a movie was because you had Timothy Leary doing the negotiating with the studios.

WG: No. Totally incorrect. Insane. When you acquire the rights to a film, the ordinary way of doing that is you take an option to purchase, and you pay a rela-

tively small amount annually to retain that right for a period of time. A five-year option wouldn't be unusual. A professional production company optioning a film, that's how they do it. With *Neuromancer*, some people turned up who weren't professionals, who had absolutely no understanding of how any of that works, but they

did have a lot of money.

LM: Kind of like Bigend in your latest novel, *Pattern Recognition*.

WG: But Bigend was smart. These people were not very smart. *Neuromancer* wasn't a very well-known property at that point. They went to my Hollywood agent and said they wanted to buy this property. We told them that they could buy it, but it would cost a lot of money, and they would only own it for five years, and if they hadn't actually made it after five years, the rights would revert to me, and I would get to keep their money. In their ignorance and hubris, they agreed to this deal. So they had five years to try to make a film of *Neuromancer*, which of course they were unable to do. They really never even got close to it. So in the end it did revert to me. Very early in their process they brought Leary in as a kind of spokesperson for the film they wanted to make. That's the association with Leary. I've never, ever been crazy enough to have had Tim Leary promoting my work in Hollywood. I may have been crazy, but I've never been that crazy.

LM: So now the rights are back to you?

WG: It's under option right now, but I can't talk about it. You shouldn't lose hope, except that whatever it might finally be, it won't be as wonderful as what you might see in your head when you read *Neuromancer*. It would be unlikely, I think, that a film of *Neuromancer* would have the impact that *Neuromancer* the novel has had. Or the shelf life that *Neuromancer* the novel has had.

LM: Were you surprised at the success and influence of *Neuromancer*?

WG: Yes, I was. And I continue to be. It was originally published as a paperback original, and I think I was paid something like twenty-six hundred American dollars, period, for my advance. My expectation was that it would be out of print in a year and might never be back in print, and any audience it might find would be a tiny, esoteric sort of hipster sci-fi audience in London or Paris. Part of that expectation was that I felt that I had deliberately gone so much against what I perceived the grain of American Science Fiction in the Eighties to be, that the people who liked that stuff would hate *Neuromancer*, and it would vanish without a trace. But it didn't go that way.

LM: Has it put pressure on you in writing novels after that, that people have these expectations of what you're going to do?

WG: The idea that *Neuromancer* was an instant triple-award-winning right-out-of-the-box success is kind of an effect of perspective looking from now. I started it in '81, finished it in '82, and it wasn't



published until '84. It didn't actually start to win those awards [the Hugo, Nebula, and Philip K. Dick awards] until about a year later. So I had two or three years there in which I was totally undisturbed by any intimations of attention for the outside world. I had to come up with a second novel and come up with a third novel. I was well into *Mona Lisa Overdrive* when *Neuromancer* started winning prizes. They were just Science Fiction prizes. It hadn't found its way out into the wider world. So it really was a very gradual thing. Its reputation and momentum built really gradually, which is a lot easier if you're the one who wrote it. You don't have to deal with a lot of fuss. The only problem I have with *Neuromancer* is, I still meet people who say "You should go back and write another one of those!" I can't, because I'm not even remotely the guy who wrote that book. I'm glad I'm not the guy who wrote that book. People expect, like "You're so spontaneous, don't ever change." People want you to do the brilliant novel thing you did the first time, over and over again. It just doesn't work.

LM: You were saying you talk about contemporary times but you put an overlay on top of it of the future, and they co-exist with each other.

WG: But it's not an overlay of the future, it's an overlay of an imaginary future. Nobody gives you the future. No-

body knows what's going to happen. It's like I would take this environment, rotate it slightly out of phase, and turn on the pseudo-future coloration machine, and sort of shake it up real good, and see what came out. I think the best reason for doing that is an attempt to find out what we've got going on right here, right now. It's not about what we might have going on. For me, it's never been about what we might have going on in thirty years.

LM: It seems to me that your early books romanticized hackers, but our attitudes toward hackers have changed over the years.

WG: It's changed in the society. When I wrote *Neuromancer*, I didn't know anything about hackers. I didn't know anything about hacker culture. I may not even have known there were hackers. But I had posited something like the Internet. There aren't any gratuitous hackers in *Neuromancer*. Everyone is bringing home the bacon. They're all thieves in a kind of criminal milieu that basically I organized around how the criminal elements in London would have been orga-

nized around the 1850s. They virtually have guilds. There's nobody in *Neuromancer* who would do anything like that Slammer Worm a couple of weeks ago which Sterling tells me went from zero to global saturation in ten minutes, and shut down a lot of stuff. That's completely fucking pointless. Just pointless. It's like joyriding graffiti bullshit. It's just absolutely meaningless, and fucks up people's lives. Where's the glory? I couldn't have had that in the world of *Neuromancer*, because it wouldn't have made any sense in terms of what I was describing. It would have undermined what I was trying to make the reader believe in, that there was this coherent world of information.

LM: It seems to me that "Burning Chrome" was closer to that concept, the idea that the characters hack the system to bring somebody down.



**When I wrote *Neuromancer*, I didn't know anything about hackers. I didn't know anything about hacker culture.**

WG: They're taking her money. They wouldn't have done it, they only did it for the money. I've never wanted to have anything to do with those people, and I never have had anything to do with them. Sterling thought it was an interesting culture. I didn't even think it was an interesting culture. I would have been interested in meeting actual criminals who were making a living using computers. But just doing it to prove that you can do it, moving the outhouse to prove that we can move the outhouse, has no appeal to me. I find criminals at least as interesting as artists, and sometimes more interesting. Anarchists I just don't find very interesting. Not in the same way.

LM: I was talking to Vernor Vinge about his concept of the Singularity, of machine intelligence overtaking human intelligence sometime in this century. Is that something that you think about?

WG: I sure don't lose any sleep over it. I really thought that was an absolutely brilliant idea, Vinge's idea of the Singularity. As I understand it it's that there can be a technologically-driven event of such magnitude that nothing on the other side would be able to recognize us as remotely human, nor would we be able to recognize anything on that side, if we could see it, as remotely human. It's kind of like a one-way mirror on both sides. I probably interpreted that really badly at the end of *All Tomorrow's Parties* [1999]. At the end of that book, the event has occurred, but the Singularity hasn't manifested yet. My assertion in that story is that the Singularity will manifest about two weeks after. It will take a week or so for everything in the world to be irrevocably changed. On the closing page of the book, they're lying down to go to sleep, but the genie is out of the bottle.

The way I read Vinge's idea is, it wouldn't be like anything that you could ever remotely imagine, and nothing would be the same. I heard somebody critique that not long ago on a web site. They said it's like the Rapture for Geeks. That's not a bad way of looking at it. With the Singularity, there's nothing on the other side that you can even imagine. So for me, I've always thought of the Singularity as being like a nanotech thing. It doesn't really matter. It's like the end of Science Fiction. You can't write Science Fiction about it. Not really. Because you're talking about something that by its very nature you cannot imagine. So to try to imagine it, imagining it doesn't work. It's like another magnitude, a completely other way of being, and you have no more chance of imagining it than you do of extracting information from a black hole, which I thought was why Vinge called it a Singularity. Does that fit with what he says about it?

LM: One thing he stresses is that machine intelligence will be to our intelligence like what our intelligence was to animal intelligence.

WG: That doesn't excite me as much as the idea that we can't imagine it at all. That's just like a Science Fiction scenario.

The machines got really smart. That's kind of like a version of the back story in the Terminator movies.

LM: Do you think this novel you just wrote is part of another trilogy?

WG: No, absolutely not. It occurred to me recently that we call novels "novels" because originally they were supposed to be novel, just completely novel. The snobbish disdain with which hard-core literary people have always looked at genre novels is because in order to be a genre novel, a novel cannot be novel. It has to resemble the other novels in its genre, so it becomes something less than a novel.

I experienced that when I was writing *Pattern Recognition*, because I could feel it diverging from my unconscious genre-based hooks that I had developed in the course of my career. That made me think I was doing something right, that it was becoming something other than what I had done before. I found that that really, really kept me awake.

It kept me very much on my toes, and I couldn't just relax into twenty years of acquired technique and knowing how to make the neon glitter on the wet streets of the future. Getting away from that was really hard. I got blisters doing that stuff. But it was really worth it, because what I wound up with isn't quite like anything else in the world. It's a novel. That, I'm convinced, is the higher road, at least for me. That's where I want to go. I don't want to write books that go back and have intercourse with previous books any more. I want to just do these singular experiences. The ultimate book would be a Singularity unto itself. Although I sometimes worry that that's what *Neuromancer* was, and I'm still trying to escape its massive gravity.

I was twenty-seven years old, and a lifetime of experience collapsed into the black hole that became *Neuromancer*. That's what people got. I gave it everything I had, and I never thought I'd have another shot. I put it all into one book, and I'm lucky I survived it as an artist. And I doubt if I would have survived it as an artist if it had actually received the kind of attention immediately that it later received. It was like having a decade of it sort of building made it bearable, and I could get my shit together and actually learn how to write some books in the meantime. That's what I did.

LM: So it's like you're starting on another career with this book?

WG: I'm trying to hedge my bets. I want to continue with the career I've had and have a new career, and the way to do that is just to say it's a William Gibson novel. *Neuromancer* is a William Gibson novel, *Pattern Recognition* is a William Gibson novel, and that's what it's about. It's not about the number of rocket ships or computers or anything like that. So far it seems to be working.



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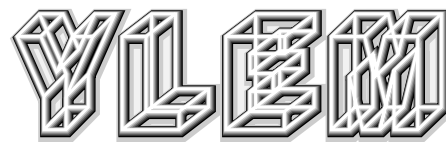
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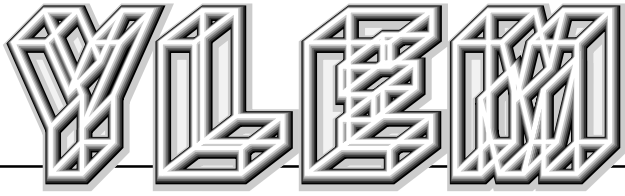
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*n. pronounced eylum, 1. a Greek word for the exploding mass from which the universe emerged.*

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